

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,013,609 B2
APPLICATION NO. : 10/087318
DATED : March 21, 2006
INVENTOR(S) : Gary J. Hydock

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The title page, showing an illustrative figure, should be deleted and substitute the attached title page.

Delete drawing sheets consisting of figures 1-25, and substitute the attached drawing sheets consisting of figures 1-25.

Signed and Sealed this

Eleventh Day of July, 2006

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a cursive "Dudas".

JON W. DUDAS
Director of the United States Patent and Trademark Office

(12) **United States Patent**
Hydock

(10) Patent No.: **US 7,013,609 B2**
(45) Date of Patent: **Mar. 21, 2006**

(54) **MODULAR RADIANT HEAT PANEL SYSTEM**

(76) Inventor: **Gary J. Hydock**, 13199 Parker Rd., Holland, NY (US) 14080

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 306 days.

(21) Appl. No.: **10/087,318**

(22) Filed: **Mar. 1, 2002**

(65) **Prior Publication Data**

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(51) Int. Cl. **E04C 2/52** (2006.01)

(52) U.S. Cl. **52/220.1; 165/49**

(58) **Field of Classification Search** 52/406.2, 52/407.5, 414, 480, 607, 309.8, 403.1, 342, 52/220.1, 220.2, 220.3, 745.4, 684, 712, 219/213; 165/49, 48.2, 168, 169, 47
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,726,593 A * 12/1955 Lahti
4,212,348 A * 7/1980 Kobayashi 165/49
4,338,995 A * 7/1982 Shelley 165/49
4,635,710 A * 1/1987 Shelley 165/49
4,766,951 A * 8/1988 Bergh 165/56
4,865,120 A * 9/1989 Shiroki 165/56
5,078,203 A * 1/1992 Shiroki 165/56
5,415,155 A * 5/1995 Coben et al. 126/663
5,454,428 A 10/1995 Pickard et al.
5,550,350 A * 8/1996 Barnes 219/213
5,598,682 A 2/1997 Haughian
5,862,854 A * 1/1999 Gary 165/55

6,021,646 A * 2/2000 Burley et al. 62/235
6,283,382 B1 * 9/2001 Fitzmeyer 237/69

FOREIGN PATENT DOCUMENTS

JP 2003-336305 * 5/2002

* cited by examiner

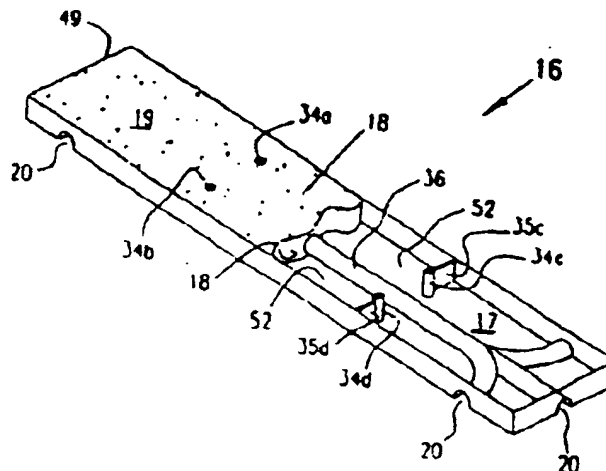
Primary Examiner—Gwendolyn Baxter

(74) *Attorney, Agent, or Firm*—Phillips Lytle LLP

(57) **ABSTRACT**

The invention is directed to modular radiant heat panel system. In the preferred embodiment, the system comprises multiple radiant heat transfer panels (16), each of the panels having a thermal mass (18) and a conduit channel (20); a fluid conduit (21), the conduit communicating with an apparatus (23) for heating fluid (22) in the conduit; the multiple panels positioned adjacent each other such that the conduit extends through a series of the conduit channels; the panels, conduit and apparatus so configured and arranged to permit heat transfer from the fluid to the thermal mass of the panel, whereby heat radiates from the panel. The present invention also discloses a radiant heat transfer panel for engagement with a fluid conduit comprising: a formed tray (24); the tray defining a thermal volume (17) and a conduit channel; the volume containing a thermal mass; and the channel, volume and thermal mass configured and arranged to permit heat transfer between the conduit and the thermal mass. The invention also discloses a method for installing a modular radiant heat panel system comprising the steps of: providing an under-layer having a given area (44); providing multiple panels having a thermal mass and a conduit channel; providing conduit; position the conduit over or under the under-layer in a predetermined pattern; and positioning the panels on or under the under-layer such that the conduit extends through at least a portion of the conduit channel of the panels.

8 Claims, 16 Drawing Sheets



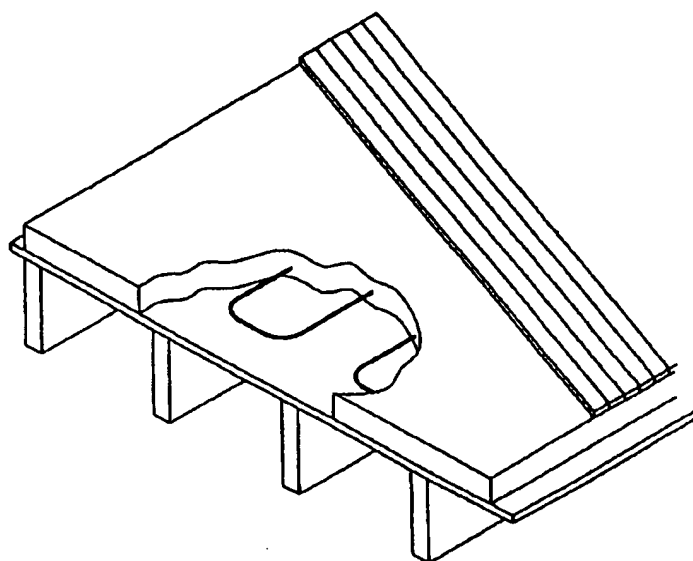


FIG. 1
(PRIOR ART)

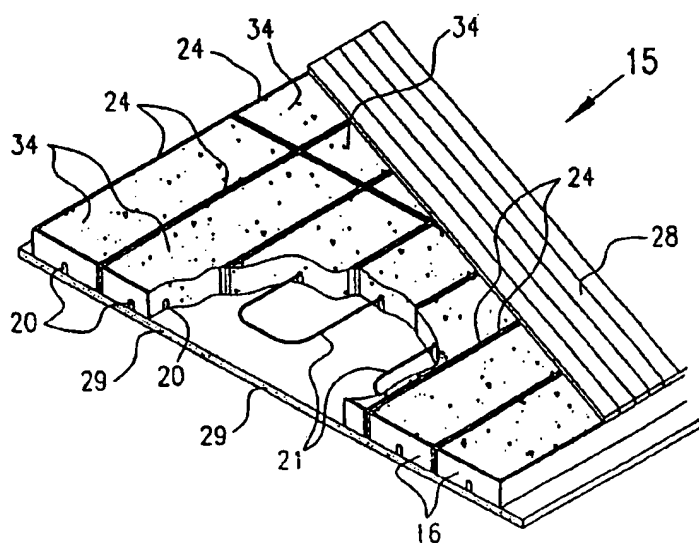


FIG. 2

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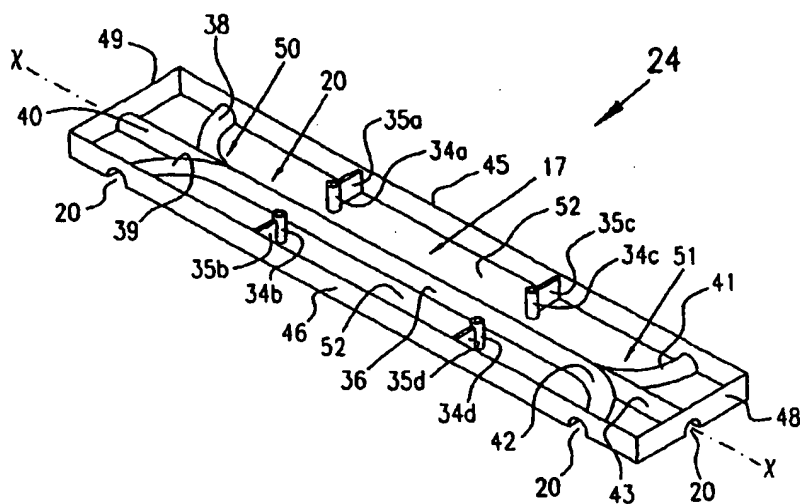


FIG. 3

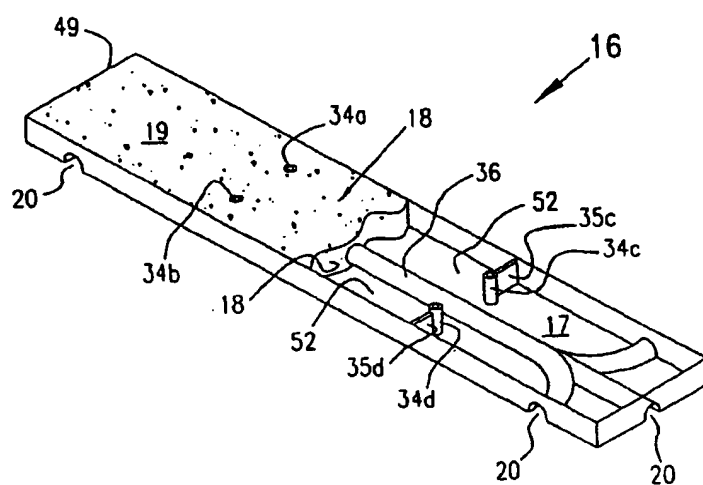


FIG. 4

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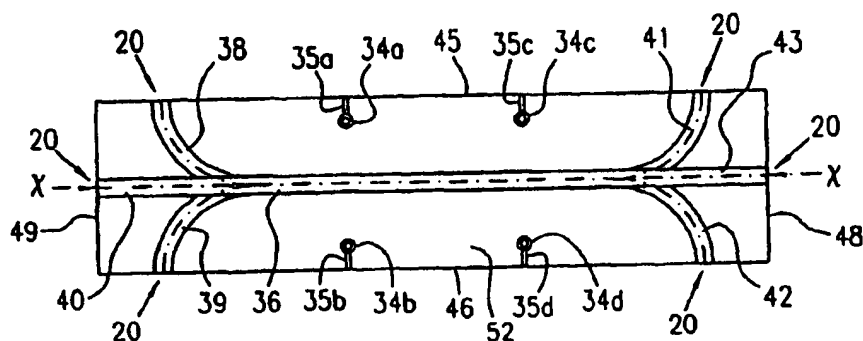


FIG. 5

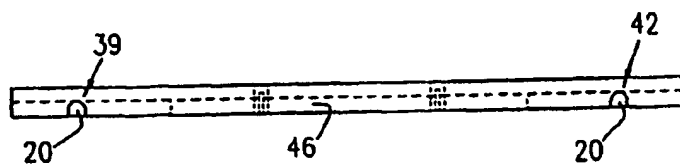


FIG. 6

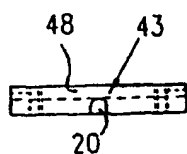


FIG. 7

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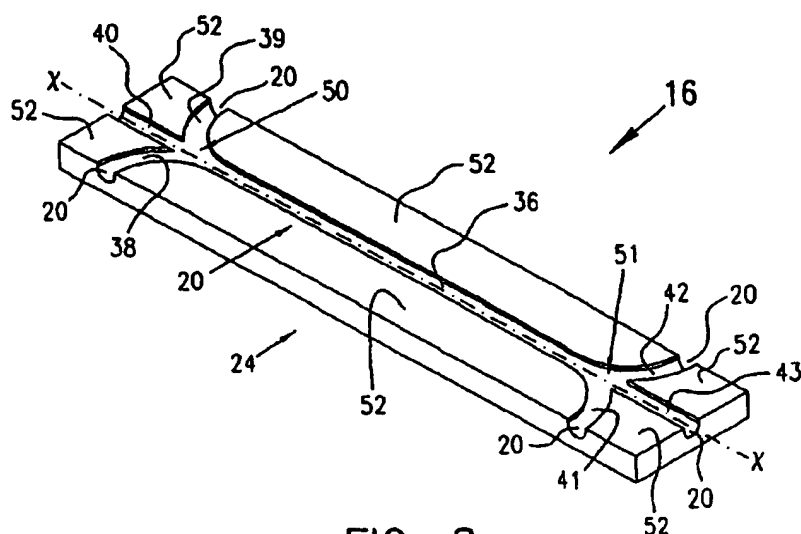


FIG. 8

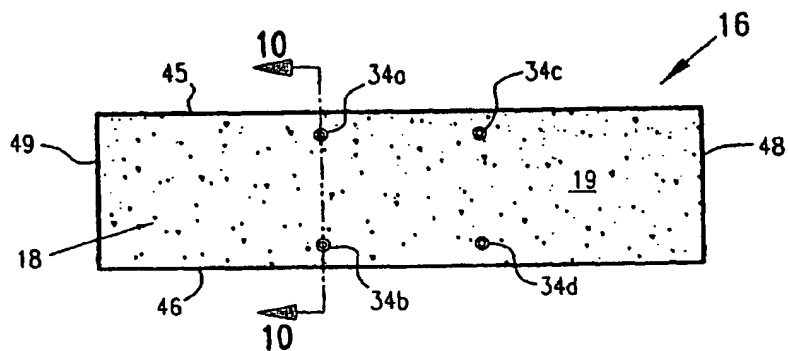


FIG. 9

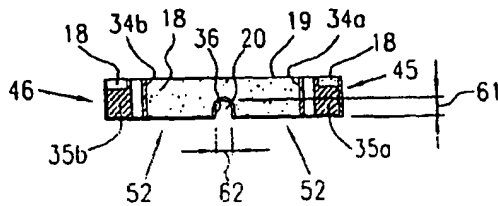


FIG. 10

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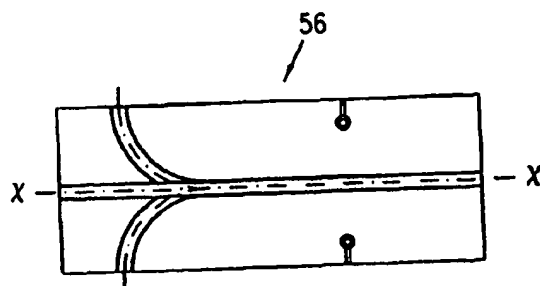


FIG. 11

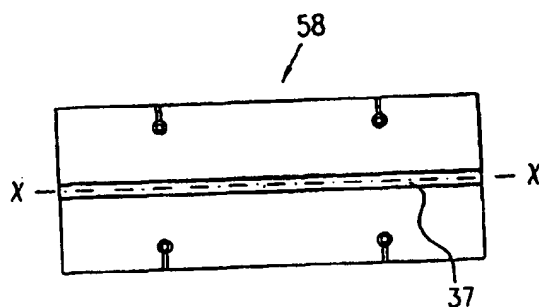


FIG. 12

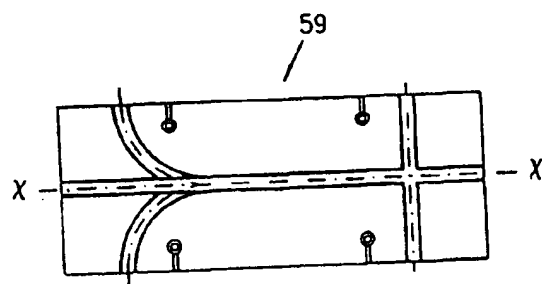


FIG. 13

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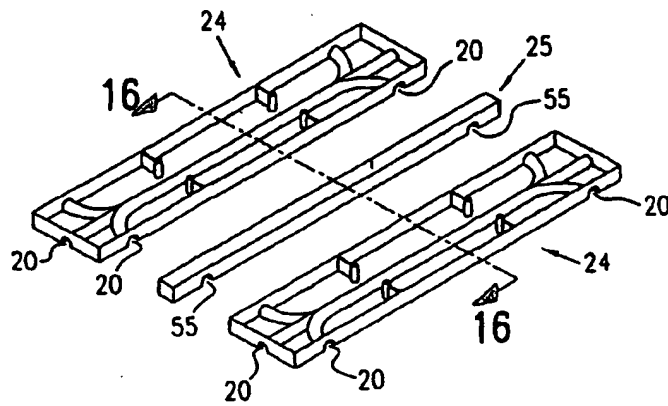


FIG. 14

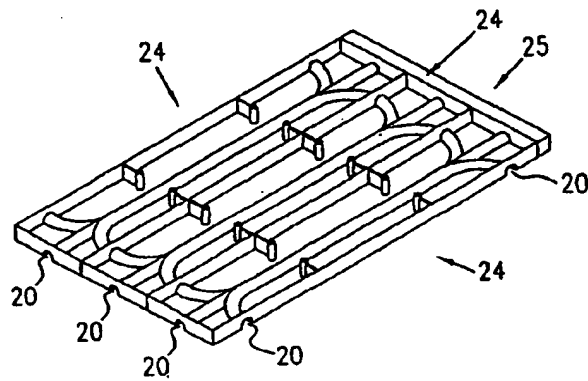


FIG. 15

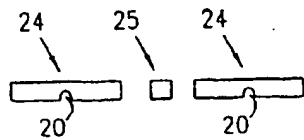


FIG. 16

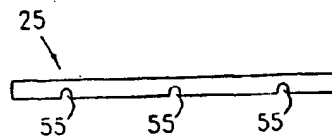


FIG. 17

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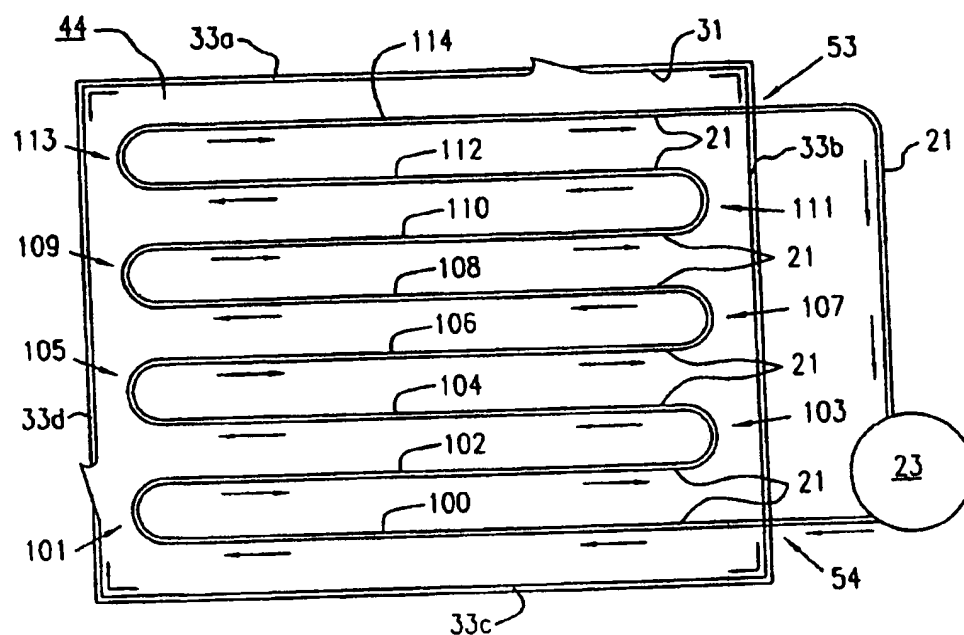


FIG. 18

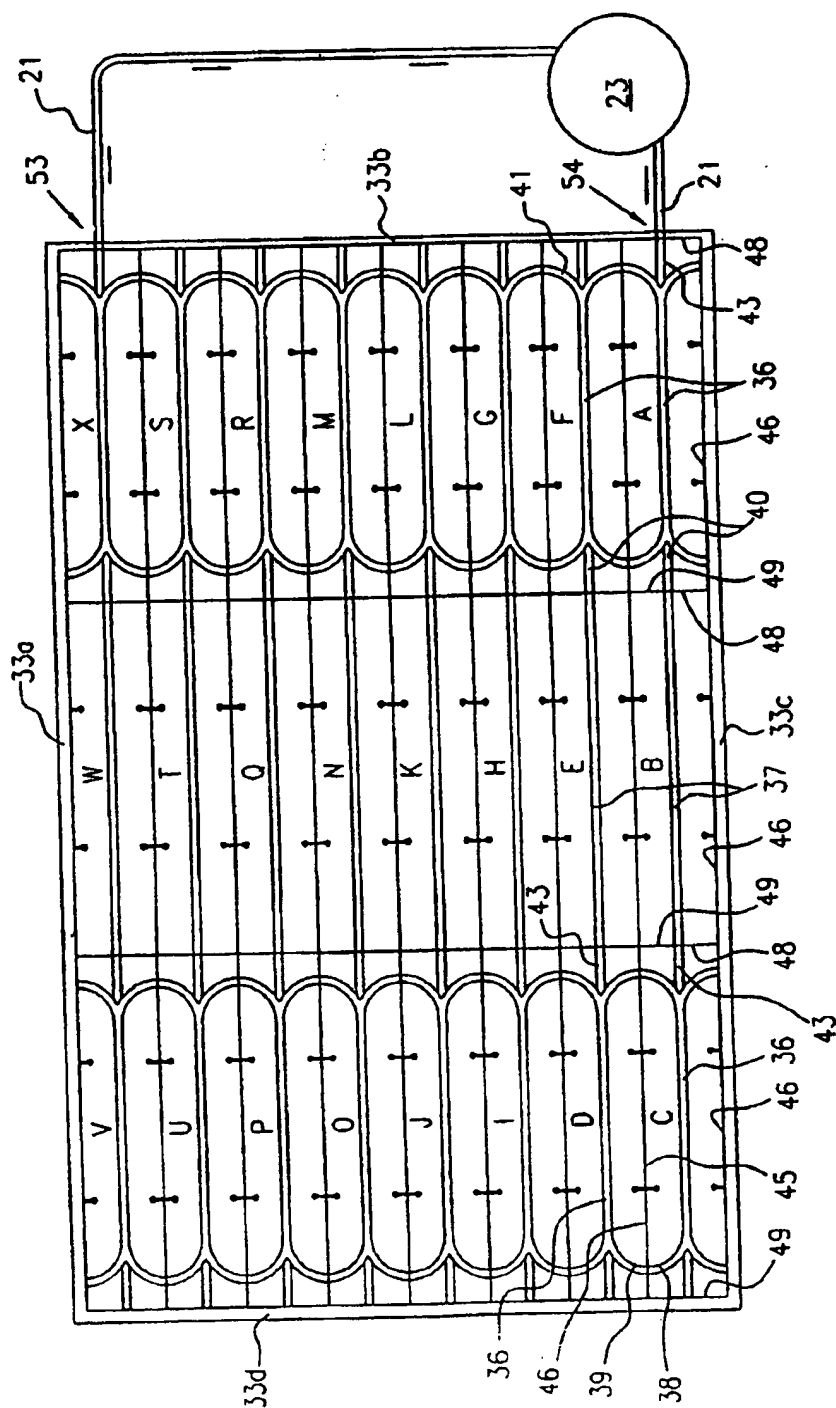


FIG. 19

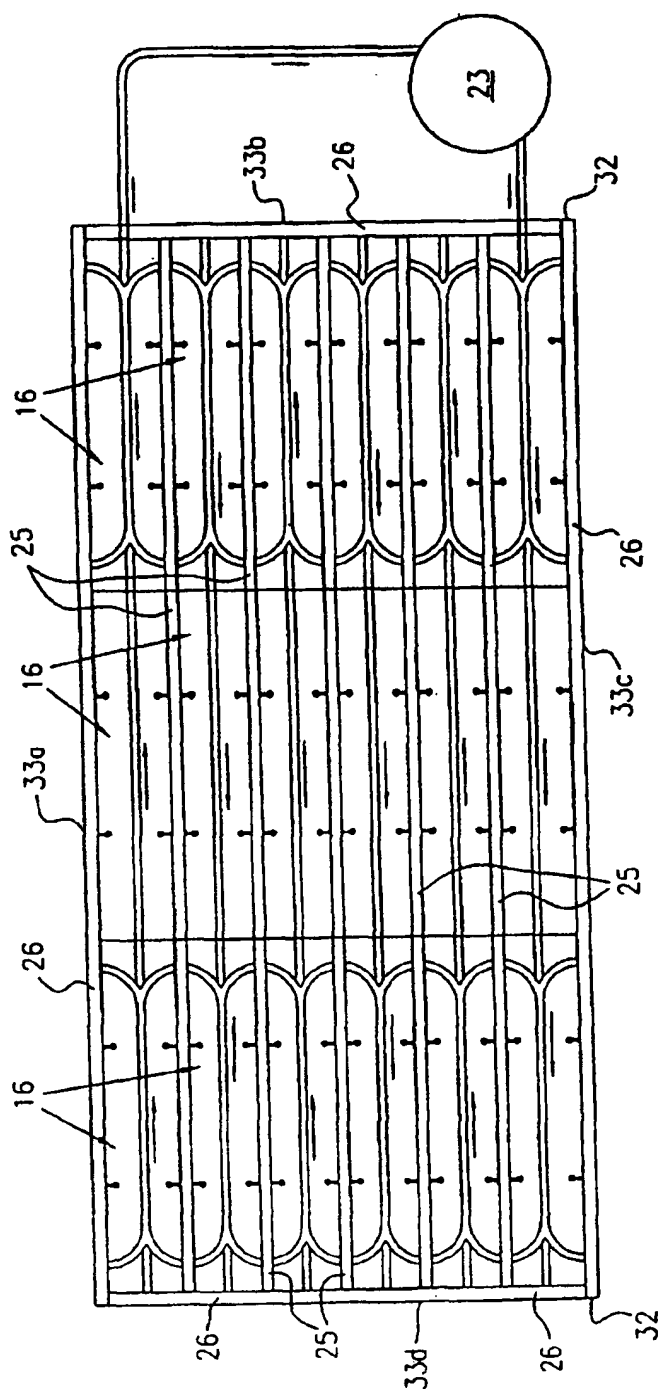


FIG. 20

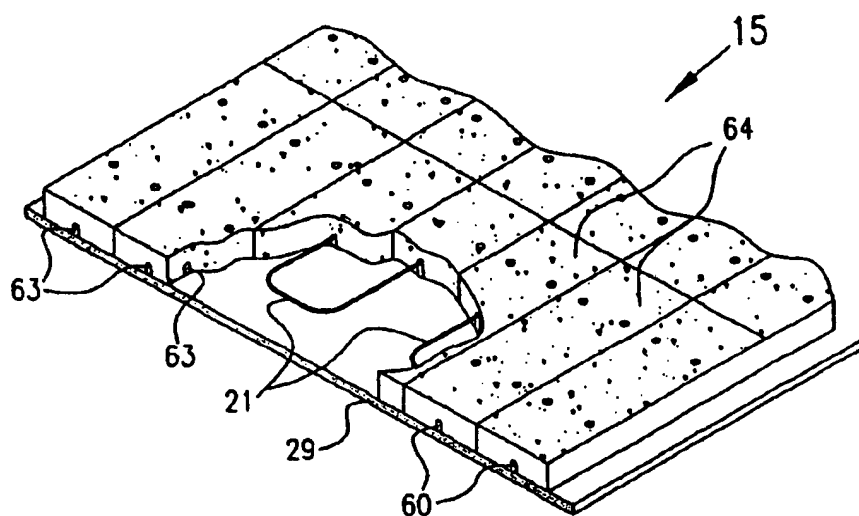


FIG. 21

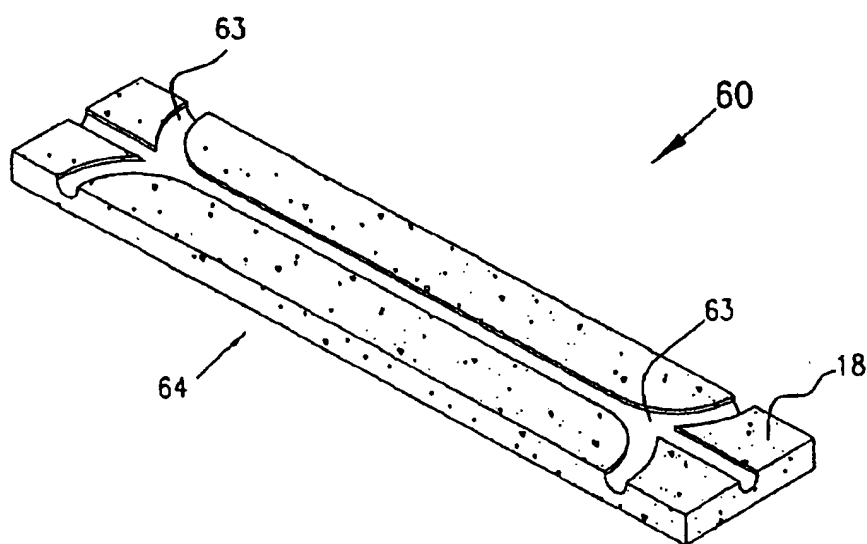


FIG. 22

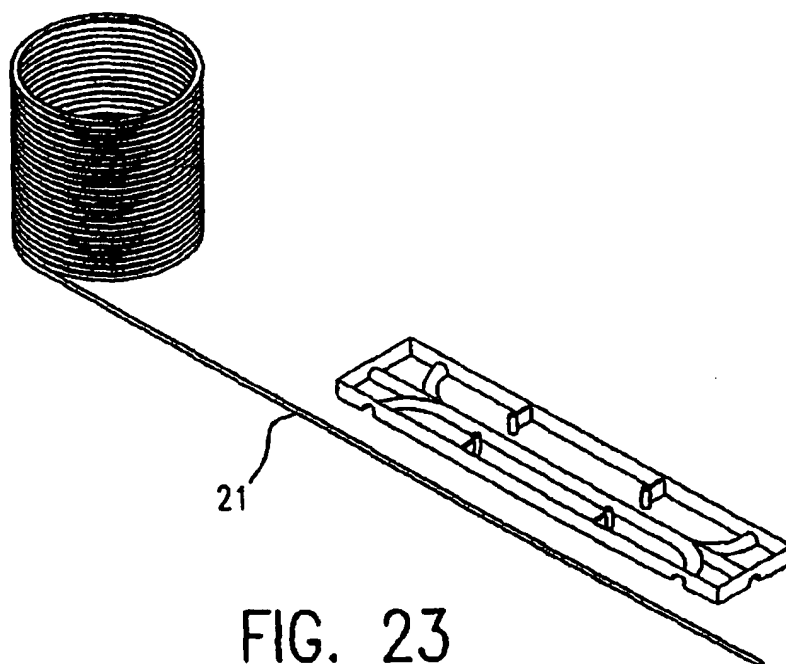


FIG. 23

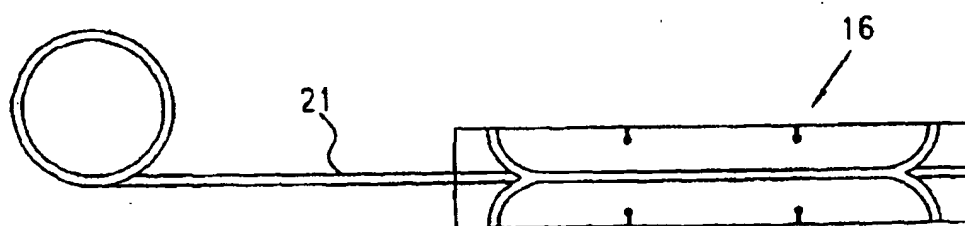


FIG. 24

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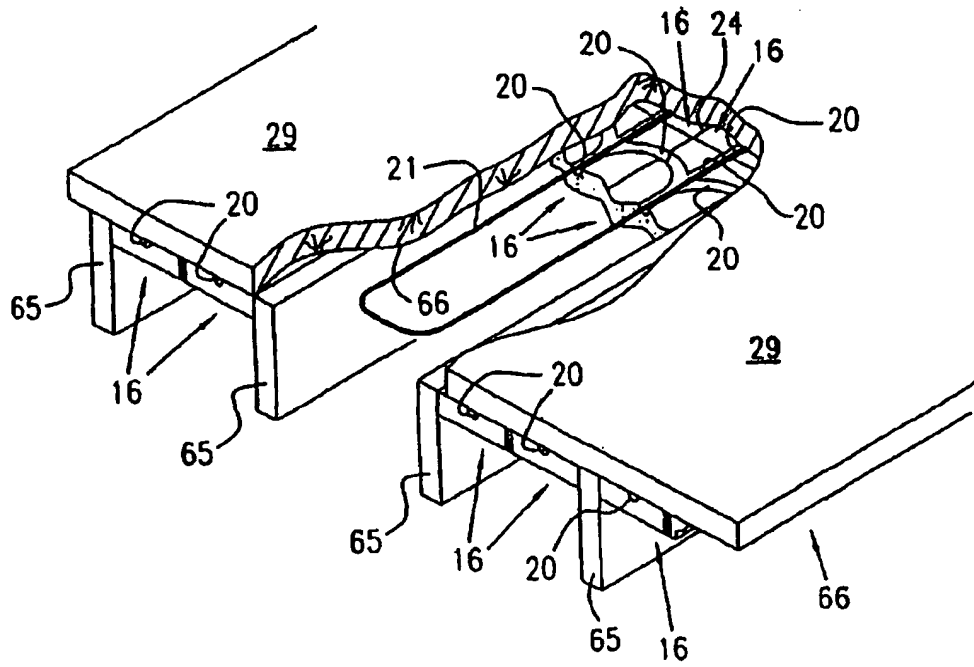


FIG. 25